

What is claimed is:

1. An actuator for driving a panel enclosure slidably mounted on a frame between an open position and a closed position, the actuator comprising:
 - two power screws rotatably mounted in the frame along parallel sides thereof;
 - two trolleys, each trolley engaging one of said parallel sides and having a threaded bore in meshing engagement with one of the power screws;
 - a single motor;
 - two flexible drive cables, each connected to one of the power screws; and
 - a transmission for coupling the two flexible drive cables to the single motor.
2. A sunroof assembly, comprising:
 - a frame, including two linear tracks, for mounting to a vehicle roof;
 - two arms, each slidably mounted in one of the linear tracks, the arms including attachment points for mounting a panel or a bracket holding a panel thereto;
 - two power screws, each rotatably mounted in one of the linear tracks;
 - two trolleys, each trolley being slidably mounted in one of the tracks and engaging one of said arms, each trolley having a threaded bore in meshing engagement with one of the power screws;
 - a single motor;
 - two flexible drive cables, each connected to one of the power screws; and
 - a transmission for coupling the two flexible drive cables to the single motor.
3. A mechanism for tilting and sliding a panel relative to a support surface having an opening therein selectively coverable by the panel, the tilt and slide mechanism comprising:
 - a frame, including a track, for mounting to the support surface;

a lifter arm for mounting the panel thereon, wherein the lifter arm includes at least one foot disposed to slide along the track and the track includes a stop cooperating with the lifter arm to arrest its linear translation along the track;

a cam follower disposed to slide along the track; and

an actuator for linearly translating the cam follower;

wherein the lifter arm includes a cam profile and the cam follower is co-operable therewith to linearly translate the lifter arm until its linear motion is arrested and to pivotably tilt the lifter arm when its linear motion is arrested.

4. A mechanism according to claim 3, wherein the actuator includes a screw rotatably mounted to the frame and the cam follower includes a threaded bore in meshing engagement with the screw so as to slide along the track when the screw is rotated.

5. A mechanism according to claim 4, wherein the actuator includes a motor having an output shaft and a flexible drive cable operatively coupled between the output shaft and one end of the screw.

6. A mechanism according to claim 5 having two said tracks and two said screws arranged in parallel, each track having one of said lifter arms and one of said cam followers disposed therein, and further including a transmission for coupling motor to two flexible drive cables, each of which is coupled to one end of the corresponding screw.

7. A mechanism according to any of claims 3 – 6, wherein the cam profile includes a detent portion and the cam follower includes a wedge seatable in the detent portion as the lifter arm is linearly translated and movable out of the detent portion to follow the remainder of the cam surface in order to pivotably tilt the lifter arm.

8. A mechanism according to claim 7, wherein the cam profile is provided as a flange on the lifter arm and the cam follower includes a pivot arm mounted to

the wedge, the pivot arm having a roller mounted thereto such that the flange is sandwiched between the wedge and roller.

9. A mechanism according to claim 8, wherein the detent portion includes an abutment therein preventing the roller from moving past the abutment.

10. A mechanism according to any of claims 3 – 9, wherein the at least one foot includes a front slider which has an angled or rounded footprint so as to be pivotable in the track.

11. A mechanism according to claim 10, wherein the track includes a stop co-operable with the front slider to arrest the linear translation of the lifter arm.

12. A mechanism according to any of claims 3 – 11, wherein the lifter arm includes a lock element slidable in the track, and the track includes a stop wall co-operable with the front slider to arrest the linear translation of the lifter arm.

13. A mechanism according to claim 12, wherein the track includes an opening therein adjacent the stop wall and the opening leads to a channel extraneous of the track, the lifter arm lock element moving into the channel as the lifter arm pivots.

14. A mechanism according to any of claims 3 – 13, including a panel attached to the lifter arm.

15. A mechanism for tilting and sliding a panel relative to a support surface having an opening therein selectively coverable by the panel, the tilt and slide mechanism comprising:

a frame, including a track, for mounting to the support surface;

a lifter arm for mounting the panel thereon, wherein the lifter arm includes at least one foot disposed to slide along the track and the track includes a stop cooperating with the lifter arm to arrest its linear translation along the track, and wherein the lifter arm includes a cam profile;

a wedge disposed to slide parallel to the track; and
an actuator for linearly translating the wedge;

wherein the lifter arm includes a cam profile having a detent portion enabling the wedge to linearly translate the lifter arm until its linear motion is arrested, the wedge moving out of the detent portion to follow the remainder of the cam profile and pivotably tilt the lifter arm when its linear motion is arrested.

16. A mechanism according to claim 15, wherein the actuator includes a screw rotatably mounted to the frame and the wedge is part of a trolley slidably mounted in the track and having a threaded bore in meshing engagement with the screw so as to slide along the track when the screw is rotated.

17. A mechanism according to claim 16, including a motor having an output shaft and a flexible drive cable operatively coupled between the output shaft and one end of the screw.

18. A mechanism according to claim 17 having two said tracks and two said screws arranged in parallel, each track having one of said lifter arms and one of said cam followers disposed therein, and further including a transmission for coupling motor to two flexible drive cables, each of which is coupled to one end of the corresponding screw.

19. A mechanism according to any of claims 15 - 18, wherein the cam profile is provided as a flange on the lifter arm and a pivot arm is mounted to the wedge, the pivot arm having a roller mounted thereto such that the flange is sandwiched between the wedge and roller.

20. A mechanism according to claim 19, wherein the detent portion includes an abutment therein preventing the roller from moving past the abutment.

21. A mechanism according to any of claims 15 - 20, wherein the at least one foot includes a front slider which has an angled or rounded footprint so as to be pivotable in the track.

22. A mechanism according to claim 21, wherein the track includes a stop co-operable with the front slider to arrest the linear translation of the lifter arm.

23. A mechanism according to any of claims 15 – 22, wherein the lifter arm includes a lock element slidable in the track, and the track includes a stop wall co-operable with the front slider to arrest the linear translation of the lifter arm.

24. A mechanism according to claim 23, wherein the track includes an opening therein adjacent the stop wall and the opening leads to a channel extraneous of the track, the lifter arm lock element moving into the channel as the lifter arm pivots.

25. A mechanism according to any of claims 15 – 24, including a panel attached to the lifter arm.

26. A mechanism for tilting and sliding a panel relative to a support surface having an opening therein selectively coverable by the panel, the tilt and slide mechanism comprising:

a frame, including one or more tracks, for mounting to the support surface;

one or more lifter arms for mounting the panel thereon, wherein each lifter arm includes at least one foot disposed to slide along one of the tracks and each track includes a stop cooperating with the corresponding lifter arm to arrest its linear translation along the track;

a trolley disposed to slide along each track; and

an actuator for linearly translating the trolleys;

wherein each lifter arm has a cam surface and each corresponding trolley includes a wedge which cooperates with the cam profile to linearly translate the lifter arm along the corresponding track as the trolley is translated when the lifter arm is free to linearly translate and to pivotably tilt the lifter arm as the trolley is further translated when the lifter arm is arrested from linearly translating.